DEPARTMENT OF NATURAL RESOURCES
AND CONSERVATION

GREG GIANFORTE, GOVERNOR
1539 ELEVENTH AVENUE

STATE OF MONTANA

DIRECTOR'S OFFICE: (406) 444-2074
FAX: (406) 444-2684
PO BOX 201601
HELENA, MONTANA 59620-1601

DECISION NOTICE
ADOPTION OF EXISTING ENVIRONMENTAL REVIEW

Wastewater Upgrades
Summer/Fall 2021
City of Belgrade
Belgrade, Montana
Gallatin County

Existing Environmental Review Document: Montana Department of Environmental Quality's Final Finding of No Significant Impact Environmental Assessment

Type and Purpose of Action

Belgrade's collection system consists of a network of gravity and force mains. Six existing lift stations. and one additional lift station in construction. The older sanitary sewer mains are nearly 50 years old. Numerous replacement projects have occurred in the past few decades and only a small portion of the City retains the older clay tile pipe. The oldest existing lift station was constructed in 1978, the latest was completed and accepted in spring 2019. The WWTP was originally an unlined four-cell facultative lagoon treatment system. In 2004, the WWTP underwent significant renovations. The current system consists of three lined lagoons, two smaller treatment ponds and one large storage and polishing pond. Three IP beds and an irrigation system are available to the City for disposal. The IP beds were constructed from 2000-2004; the irrigation system was added in 2002. To facilitate impending demand for utility service. in July 2018 DEQ approved the City's request for increased capacity of the treatment system to 1.25 MGD. with the expectation that the City takes measurable steps to upgrade the treatment system.

Due to Belgrade's rapid growth, once all new and approved subdivisions and developments are constructed, occupied, and wastewater contributions are all maximum flow, the outfall sewer and treatment plant will exceed design capacities. The ADF including imminent development is al 1.12 MGD, or 90% of the increased capacity. The BOD and TN loading is currently exceeding design capacity.

The project proposes to construct a new gravity sewer main parallel to the existing trunk main to increase capacity, a new headworks facility for primary treatment, an oxidation ditch for secondary treatment, an FSL for solids digestions, and an additional IP bed for treated effluent disposal.

Explanation of the decision(s) that must be made regarding the proposed action (i.e. approve grant or loan and provide funding):

DNRC will approved the loan to provide funding for the City of Belgrade Wastewater Upgrades project.

Criteria for Adopting Existing Environmental Review

☒The existing environmental review covers an action paralleling or closely related to the proposed action.
☒The information in the existing environmental review is accurate and clearly presented.
The information in the existing environmental review is applicable to the action being considered.
☒All appropriate Agencies were consulted during preparation of the existing environmental review.
☒Alternatives to the proposed action evaluated as part of the existing environmental review effort.
☒The impacts of the proposed action been accurately identified as part of the existing environmental review.
☒The existing environmental review identifies any significant impacts as a result of the proposed action and those identified will they be mitigated below the level of significance.

Adopt
The existing environmental review can be considered sufficient to satisfy DNRC's MEPA review responsibilities. No further analysis needed.

Existing Analysis Prepared By:	**Name:**	Demitra Blythe	**Date:**	10/21/2021
	Title:	CARD Division MEPA Coordinator		
	Email:	Demitra.Blythe@mt.gov		

Approved By:	Name:	Mark Bostrom		
	Title:	CARD Division Administrator		
Signature:	DocuSigned by: Mark W Bostrom BF7A1C30B2AF4DE...		**Date**:	10/26/2021 | 4:01:14 PM MDT

DEQ
Montana Department
of Environmental Quality

February 21, 2020

FINDING OF NO SIGNIFICANT IMPACT

TO ALL INTERESTED GOVERNMENTAL AGENCIES AND PUBLIC GROUPS

As required by state and federal rules for determining whether an Environmental Impact Statement is necessary, an environmental review has been performed on the proposed action below:

Project	Belgrade WWRF Upgrade
Location	Belgrade, Montana
Project Number	C303707
Total Cost	$37,850,000

The City of Belgrade (City) has identified the need to construct a new water resource recovery facility (WRRF) to address treatment system deficiencies and accommodate future growth and achieve compliance with the City's Montana Groundwater Pollution Control System (MGWPCS) permit. The City's current three-cell lagoon treatment facility was constructed in 2004, with an overall rated capacity of 903,000 gallons per day (gpd). While the lagoons are performing adequately, the 2019 Wastewater System Preliminary Engineering Report (PER) identified possible liner defects which could result in significant seepage. The PER also notes that a significant amount of sludge has accumulated in the two primary lagoon cells which will need to be removed and disposed of properly. Recent data show average influent flow to the facility is about 816,500 gpd, with a projected growth rate of 3.5% per year for the next 20 years. Expansion of the City's wastewater treatment capacity is required to fulfill existing service commitments and planned growth throughout the Belgrade area. It will also protect groundwater resources and public health in the area by eliminating the need for properties to utilize individual on-site wastewater systems.

The City will construct a new mechanical treatment plant on land just west of the existing lagoons. The WRRF will consist of a new headworks facility with inclined cylindrical drum screens and a vortex-style grit removal system; two new oxidation ditches, complete with influent flow control, vertical turbine aerators, submersible mixers, internal flow control gates, and instrumentation & control equipment; two new secondary clarifiers; new/modified operations and pump facilities that house laboratory and administrative space, effluent and sludge transfer pumps, and solids stabilization blowers; and site piping and flow control structures. Treated effluent will continue to be discharged to the infiltration/percolation (I/P) beds and land application system.

Sludge from the existing lagoon cells will be removed, dewatered, and land-applied on nearby farmland in accordance with Federal 40 CFR 503 sludge disposal regulations. As an alternative, dewatered biosolids would be hauled to a local Class II landfill. Other project components include

a parallel 21-inch PVC sewer main to increase conveyance capacity between the City and the new WRRF, and a new water line from a nearby subdivision to provide potable water and fire protection for the WRRF. Construction is scheduled to begin in the spring of 2020 and will be completed in late 2021.

Federal and State grant/loan programs will fund the project. Environmentally sensitive characteristics such as wetlands, floodplains, threatened or endangered species, and historical sites are not expected to be adversely impacted because of the proposed project. Public participation during the planning process demonstrated support for the selected alternative. No significant long-term environmental impacts were identified.

An environmental assessment (EA), which describes the project and analyzes the impacts in more detail, is available for public scrutiny on the DEQ web site (http://www.deq.mt.gov/Public/ea) and at the following locations:

Jeremy Perlinski, P.E.
Department of Environmental Quality
1520 East Sixth Avenue
P.O. Box 200901
Helena, MT 59620-0901
Jeremy.Perlinski@mt.gov

Ted Barkley, City Manager
City of Belgrade
91 East Central Avenue
Belgrade, MT 59714

Comments on the EA may be submitted to the Department of Environmental Quality at the above address. After evaluating comments received, the department will revise the environmental assessment or determine if an environmental impact statement is necessary. If no substantive comments are received during the comment period, or if substantive comments are received and evaluated and the environmental impacts are still determined to be non-significant, the agency will make a final decision. No administrative action will be taken on the project for at least 30 calendar days after release of the Finding of No Significant Impact.

Sincerely,

Kevin B. Smith, P.E.
Engineering Bureau
Water Quality Division
Montana Department of Environmental Quality

CITY OF BELGRADE

WATER RESOURCE RECOVERY FACILITY UPGRADE

ENVIRONMENTAL ASSESSMENT

I. COVER SHEET

A. PROJECT IDENTIFICATION

Applicant:	City of Belgrade
Address:	91 East Central Avenue
	Belgrade, MT 59714
Project Number:	C303707

B. CONTACT PERSON

Name:	Ted Barkley, City Manager
Address:	91 East Central Avenue
	Belgrade, MT 59714
Telephone:	(406) 388-3760

C. ABSTRACT

The City of Belgrade (City), through its 2019 Wastewater System Preliminary Engineering Report (PER), prepared by TD&H Engineering, has identified the need to construct a new water resource recovery facility (WRRF) to accommodate future growth and achieve compliance with the City's Montana Groundwater Pollution Control System (MGWPCS) permit. The City's current three-cell lagoon treatment facility was constructed in 2004, with an overall rated capacity of 903,000 gallons per day (gpd). Effluent disposal is accomplished via infiltration/percolation (I/P) beds on a year-round basis along with land application during the summer months. The MGWPCS permit limits the discharge of total nitrogen (TN) to the three I/P beds to no more than a combined load of 227 pounds per day (lbs/day).

While the lagoons are performing adequately, there is evidence of punctures in the liner which could result in significant seepage. Also, it has been estimated that 1.5 feet of sludge has accumulated in the two primary lagoon cells, accounting for a total sludge volume of nearly 5.6 million gallons (MG). Recent data show average influent flow to the facility is about 816,500 gpd, with a projected growth rate of 3.5% per year. Expansion of the City's wastewater treatment capacity is required to fulfill existing service commitments and planned growth throughout the Belgrade area. It will also protect groundwater resources and public health in the area by eliminating the need for properties to utilize individual on-site wastewater systems.

To address treatment system deficiencies, the City will construct a new mechanical treatment plant on land just west of the existing lagoons. The WRRF will consist of a new headworks facility with inclined cylindrical drum screens and a vortex-style grit removal system; two new oxidation ditches, complete with influent flow control, vertical turbine aerators, submersible mixers, internal flow control gates, and instrumentation & control equipment; two new secondary clarifiers; new/modified operations and pump facilities that house laboratory and administrative space, effluent and sludge transfer pumps, and solids stabilization blowers; and site piping and flow control structures. Treated effluent will continue to be discharged to the I/P beds and land application system.

Sludge from the existing lagoon cells will be removed, dewatered, and land-applied on nearby farmland in accordance with Federal 40 CFR 503 sludge disposal regulations. As an alternative, dewatered biosolids would be hauled to a local Class II landfill. Other project components include a parallel 21-inch PVC sewer main to increase conveyance capacity between the City and the new WRRF, and a new water line from a nearby subdivision to provide potable water and fire protection for the WRRF. Construction is scheduled to begin in the spring of 2020 and will be completed in late 2021.

Federal and State grant/loan programs will fund the project. The upgrade, including administrative, engineering, and finance costs, is estimated to cost approximately $37,850,000. The City intends to fund the upgrade project through a $1,680,000 USDA/Rural Development (RD) grant; $19,900,000 RD loan (40 years @ 2.75%); $15,850,000 State Revolving Fund (SRF) loan (20 years @ 2.5%); and $420,000 of City funds.

Environmentally sensitive characteristics such as wetlands, floodplains, threatened or endangered species, and historical sites are not expected to be adversely impacted because of the proposed project. Additional environmental impacts related to land use, water quality, air quality, public health, energy, noise, growth, and sludge disposal were also assessed. No significant long-term environmental impacts were identified.

Under Montana law, (75-6-112, MCA), no person may construct, extend, or use a public sewage system until the Department of Environmental Quality (DEQ) has reviewed and approved the plans and specifications for the project. Under the Montana Water Pollution Control State Revolving Fund Act, the DEQ may loan money to municipalities for construction of public sewage systems.

The DEQ Engineering Bureau has prepared this Environmental Assessment to satisfy the requirements of the Montana Environmental Policy Act (MEPA) and the National Environmental Policy Act (NEPA).

D. COMMENT PERIOD

Thirty (30) calendar days

II. PURPOSE OF AND NEED FOR ACTION

Significant growth in the Belgrade area necessitates expansion of wastewater treatment capacity. Other deficiencies in the City's existing wastewater system include an undersized outfall sewer and potentially leaking lagoons. Belgrade's public drinking water system obtains its water supply from a series of groundwater wells located throughout the City. The leaking treatment lagoons have the potential to introduce untreated or partially treated wastewater into the ground. Also, insufficient treatment capacity can result in inadequate effluent quality. Because the City of Belgrade obtains its drinking water exclusively from wells, groundwater contamination can jeopardize the City's public water supply, leading to serious public health and safety issues. Furthermore, insufficient outfall sewer capacity has the potential to cause wastewater to back up in the collection system and into residences and high-traffic buildings.

To accommodate the rapid growth in the Belgrade area, DEQ worked with the City to increase the capacity of the existing WWTP to 1.25 million gallons per day (mgd) in June 2018, with the expectation that measurable progress would be made on constructing the new WRRF. Deviations from blower and emergency storage requirements were necessary to approve this increase in capacity. While the current influent flow is only 65 percent of this value, it is expected that the existing lagoon facility will be at full capacity in less than 12 years based on the number of existing services, commitment letters, and discussions with various proposed developments. It is anticipated that the City will generate influent flows of approximately 1.74 mgd at the end of the 20-year planning period.

The most pressing issue facing the City's wastewater system is the lack of sufficient capacity. To fulfill existing service commitments and allow for planned growth in the area, expansion of the City's wastewater treatment capacity is necessary. Increased capacity will allow new properties to connect to public sewer rather than utilize on-site systems which will help protect water resources and public health in the area.

The proposed project consists of:

- Sludge removal and disposal;
- New 21-inch trunk main and water line to the WRRF;
- New mechanical treatment plant with headworks, oxidation ditches, and secondary clarifiers;
- Facultative sludge lagoons for biosolids storage and stabilization.

III. ALTERNATIVES INCLUDING THE PROPOSED ACTION

Multiple alternatives were considered to address the collection system, secondary treatment, effluent disposal, and solids handling deficiencies identified in the PER. The City leases property from the State of Montana and the Gallatin Airport Authority for their wastewater facilities. There is sufficient land just west of the existing lagoon system for the construction of the infrastructure described in the following alternatives.

A. COLLECTION SYSTEM ALTERNATIVES

Four alternatives were considered for improving the City's wastewater collection system. These are:

Alternative C-1: No Action
Alternative C-2: Lift Station Improvements
Alternative C-3: Outfall Sewer Capacity Increase – Remove and Replace
Alternative C-4: Outfall Sewer Capacity Increase – Parallel Pipes

Alternative C-1: No Action
The most serious issue noted in the collection system is the lack of capacity in the outfall sewer. Problems with the outfall sewer increase the potential for raw sewage to back up in the collection system, residences, and high traffic buildings. The City would have to restrict acceptance of wastewater flows from future developments leading to the installation of more individual on-site wastewater systems Therefore, the no-action alternative was not considered to be a feasible option, and was not given further consideration.

Alternative C-2: Lift Station Improvements
This alternative involves completing the recommended lift station improvements noted in the PER. At this time, the lift station repairs are not considered critical and will be prioritized by City staff for future rehabilitation. Therefore, this alternative will not be discussed further.

Alternative C-3: Outfall Sewer Capacity Increase – Remove and Replace
This alternative consists of removing and replacing the existing outfall sewer, from Dry Creek Road to the new WRRF. The existing 21-inch PVC pipe would be removed and replaced with a 27-inch PVC pipe sized to handle the projected growth. New manholes would be installed the length of the alignment to facilitate the upsized pipe. Temporary bypass pumping of the existing wastewater flows would be required during construction.

Alternative C-4: Outfall Sewer Capacity Increase – Parallel Pipes
This alternative involves constructing a parallel outfall sewer main next to the existing 21-inch PVC pipe from the vault at Dry Creek Road to the new WRRF. The new outfall sewer would be 21-inch PVC and include new manholes along the alignment. Temporary bypass pumping will be required during construction to connect the new pipe to the existing infrastructure.

B. PRELIMINARY TREATMENT ALTERNATIVES

A new headworks facility will be constructed as part of the WRRF upgrade including screening (for removing larger solids like rags, wood, and plastics) and grit removal (for removing inert particles like sand, small gravel, and dense vegetable matter). The PER looked at a "No Action" alternative, which was quickly dismissed because there is no existing headworks at the lagoon facility. The four screening alternatives evaluated in the PER are as follows:

Alternative H-2 (S1): Multi-Rake Bar Screen w/ Washer Compactor
Alternative H-2 (S2): Perforated-Plate Filter Screen w/ Washer Compactor
Alternative H-2 (S3): Continuous Moving Element Screen w/ Washer Compactor
Alternative H-2 (S4): Inclined Cylindrical Drum Screen

The two grit removal alternatives considered in the PER are as follows:

Alternative H-2 (G1): Vortex-Style Grit Separator w/ Classifier
Alternative H-2 (G2): Stacked-Tray Grit Concentrator w/ Washer/Classifier

Alternative H-2 (S1): Multi-Rake Bar Screen w/ Washer Compactor
A multi-rake bar screen consists of a set of vertical bars which are periodically cleared out by several rakes set up on a revolving chain that continuously runs along the length of the screen frame. The rakes convey screened material up to the top of the frame, where the rakes are cleaned, and the collected material is discharged into a stand-alone washer compactor. The washer compactor uses service water to remove organic material and a screw conveyor to dewater the screenings prior to final disposal in a landfill.

Alternative H-2 (S2): Perforated-Plate Filter Screen w/ Washer Compactor
This style of screen incorporates a continuous band of perforated panels attached to heavy-duty stainless-steel roller chains. The screenings are carried up above the channel and removed from the plates with a two-stage brushing and water jet system where they fall into a standalone washer compactor. The washer compactor uses service water to remove organic material and a screw conveyor to dewater the screenings prior to final disposal in a landfill.

Alternative H-2 (S3): Continuous Moving Element Screen w/ Washer Compactor
A continuous moving element screen includes a series of panels with integrated filtration elements woven together and situated on a rotating belt. Solids captured on the filter-rake elements are moved up and over the top of the screen frame, where the filter panels are scraped and washed. Screenings that are removed from the panels discharge into a stand-alone washer compactor. The washer compactor uses service water to remove organic material and a screw conveyor to dewater the screenings prior to final disposal in a landfill.

Alternative H-2 (S4): Inclined Cylindrical Drum Screen
This style of screen catches solids using a curved, perforated plate or wedge wire mesh panel set at an incline within the channel. Floating and suspended materials are retained by the bars of the screen drum. The screenings are continuously removed with a rotating auger that is flush with the curved panel. The inclined screw pushes the screenings through an auger tube, where the screenings are washed and compacted before final disposal in a landfill.

Alternative H-2 (G1): Vortex-Style Grit Separator w/ Classifier
A vortex-style grit separator consists of a cylindrical tank with a tangential inlet near the top of the cylinder. Vortex flow, generated by a rotating impeller within the tank, encourages heavier solids (i.e. grit) to settle to the bottom while the lighter suspended solids travel over a weir and back into the headworks channel. The

settled grit accumulates in a lower grit chamber and is periodically pumped to a grit classifier. The hopper of the classifier is sized to settle the heavier grit and allow the lighter organic material to stay in suspension. The settled grit is conveyed to a dumpster via an inclined screw while the de-gritted wastewater overflows through an outlet pipe for further treatment. The dewatered grit in the dumpster is hauled to a landfill for final disposal.

Alternative H-2 (G2): Stacked-Tray Grit Concentrator w/ Washer/Classifier
This grit removal system includes a modular design featuring multiple funnel-shaped trays stacked on top of one another. A distribution header at the inlet induces vortex flow across each tray individually, which allows grit to settle out along the sloped surface of each tray. Settled grit funnels into an opening in the center of the unit where it is transferred periodically to a smaller, vortex-style grit washer. Service water is added to "wash" the organics off the grit, while the solution is agitated to induce a vortex and settle grit on the bottom. The concentrated grit slurry is discharged occasionally to a grit classifier for dewatering prior to final disposal.

C. SECONDARY TREATMENT ALTERNATIVES

The PER considered four secondary treatment alternatives for addressing the City's need to increase treatment capacity. These are:

Alternative T-1: No Action
Alternative T-2: Sequencing Batch Reactor
Alternative T-3: Oxidation Ditch
Alternative T-4: Modified Ludzack-Ettinger Process

Alternative T-1: No Action
The "No Action" alternative consists of allowing the existing lagoon treatment system to remain operational without any upgrades. Although the current WWTP is operating adequately to meet the City's MGWPCS permit, it is quickly nearing its design capacity. In addition, supplementary nutrient removal will be required to maintain compliance with TN discharge limits based on estimated flow projections. For these reasons, this alternative is not considered a viable option for the City and not further evaluated.

Alternative T-2: Sequencing Batch Reactor
This alternative consists of constructing a sequencing batch reactor (SBR) facility to provide secondary treatment. An SBR is a fill and draw activated sludge technology that utilizes a single basin (or reactor) for treatment and clarification. To provide continuous treatment, SBR systems typically contain multiple basins that are operated with alternating cycles. With a "flow-thru" SBR system, each basin can be operated independently from the other with influent continuously flowing into each basin, but still maintaining a react, settle, and decant sequence like a traditional "batch" system. As the influent enters the basin it will be exposed to anaerobic, aerobic, and anoxic conditions that will result in carbon, nitrogen and even some phosphorus removal. After treatment, the basin content would be allowed to settle and the supernatant would be decanted from the surface.

Alternative T-3: Oxidation Ditch

This alternative consists of constructing new oxidation ditches and secondary clarifiers for secondary treatment. Oxidation ditches are a variation of the activated sludge process that are considered complete-mix systems with extended aeration. An oxidation ditch is an oval-shaped, concrete structure (bioreactor) with oxygen provided by mechanical aeration and mixing devices. The ditch would be configured with anoxic and aerated zones to maximize carbon reduction and simultaneous nitrogen removal (nitrification/denitrification). Secondary clarifiers would be used to separate solids from the treated effluent. Settled solids are either returned to the process (RAS) or wasted form the process (WAS) for further stabilization and disposal.

Alternative T-4: Modified Ludzack-Ettinger Process

This alternative includes implementing the Modified Ludzack-Ettinger (MLE) activated sludge process for nitrogen removal. The MLE process would require construction of two bioreactors consisting of anoxic and aerobic basins. In this process, nitrification occurs in the aerobic zone and denitrification takes place in the anoxic basin. Mixed liquor with an elevated nitrate concentration is recycled from the aerobic zone back to the anoxic zone at a high flow rate. Effluent from the MLE process flows to the secondary clarifiers where the solids are separated from the treated effluent. Settled solids are either returned to the process (RAS) or wasted form the process (WAS) for further stabilization and disposal.

D. DISPOSAL SYSTEM ALTERNATIVES

Four effluent disposal system alternatives were evaluated. These include:

Alternative D-1: No Action
Alternative D-2: Disinfection and Surface Water Discharge
Alternative D-3: Additional I/P Bed
Alternative D-4: Additional Spray Irrigation Area
Alternative D-5: Expanded I/P Beds A & B

Alternative D-1: No Action

The "No Action" alternative consists of allowing the current disposal system to stay in place with no improvements. Although the existing system is operating fine, City staff have expressed interest in having more flexibility within the disposal system. Based on assumed effluent TN concentrations from the new WRRF, calculations show that the existing disposal infrastructure does not have adequate capacity to support the projected design flows. Therefore, this alternative is not considered feasible and eliminated from further discussion.

Alternative D-2: Disinfection and Surface Water Discharge

This alternative involves discharging treated effluent to a nearby surface water. A new discharge permit would be required from DEQ with likely more stringent pollutant limitations than the City's current MGWPCS permit. Also, disinfection would likely be required to meet pathogen requirements of the permit. Given the existing groundwater discharge infrastructure and its relatively good condition, this alternative is not a viable disposal option and not considered further.

Alternative D-3: Additional I/P Bed

This alternative includes constructing a fourth I/P bed (I/P Bed D), which would be similar in design and size to the existing I/P beds. I/P Bed D would provide roughly 100,000 square feet of total disposal area. The alternative includes a new transmission main to transport treated effluent from the new WRRF to I/P Bed D and I/P Bed C, so the existing pipeline can be used solely for the land application system. This alternative would require the City to revise their current MGWPCS permit, which would trigger a non-degradation review by DEQ. New monitoring wells would have to be drilled within the mixing zone to allow for groundwater testing. This alternative also includes upgrading the existing I/P beds with automated controls to reduce overall operation and maintenance (O&M) costs.

Alternative D-4: Additional Spray Irrigation Area

This alternative includes upgrading the existing irrigation system and constructing new irrigation laterals and sprinklers on 46 acres. The alternative also includes constructing a new transmission main to existing I/P Bed C, so the existing pipeline can be used solely for the land application system. The future design flow would have to be stored during the winter months, which would require the capacity of existing Lagoon #3 to be expanded by roughly 40 MG. This would be accomplished by raising the berms of Lagoon #3 higher and modifying the lagoon piping. The new disposal infrastructure would allow the City to meet projected design flows and provide additional flexibility.

Alternative D-5: Expanded I/P Beds A & B

This alternative involves modifying and expanding existing I/P Beds A and B. Both I/P beds will be expanded to the north roughly 85 ft and all the internal dikes will be removed to provide additional area. The existing dike separating I/P Beds A and B will remain in the same location. Isolation valves on the inlet valves and overflow piping will connect I/P Beds A and B. This additional infiltrative area allows the City to meet projected design flows.

E. SOLIDS HANDLING ALTERNATIVES

The primary objective of the solids handling alternatives is to provide a system that accommodates the long-term biosolids generation, stabilization, storage and disposal needs for the City. The PER considered five alternatives for addressing solids stabilization, storage, and ultimate disposal. These include:

Alternative S-1: No Action
Alternative S-2: Anaerobic Digestion & Land Application
Alternative S-3: Facultative Sludge Lagoon w/ Air Cap & Land Application
Alternative S-4: Thickened Aerobic Digestion with Storage & Land Application
Alternative S-5: Dewatering with Chemical (Lime) Stabilization & Land Application

Alternative S-1: No Action

Under the "No Action" alternative, no biosolids improvements would be constructed at the WRRF. This is not a practical solution because the existing WWTP does not currently have adequate sludge stabilization or storage infrastructure to handle future design flows. This alternative was quickly dismissed for this reason.

Alternative S-2: Anaerobic Digestion & Land Application

This alternative consists of constructing anaerobic digestion facilities combined with land application for biosolids disposal. Anaerobic digestion is typically utilized at plants where primary clarifiers are operated. Due to the relatively small flows at the proposed WRRF and complex nature of these processes, neither primary clarifiers or anaerobic digestion were considered feasible alternatives.

Alternative S-3: Facultative Sludge Lagoon w/ Air Cap & Land Application

This alternative includes repurposing existing Lagoon #1 into a facultative sludge lagoon (FSL) with land application of stabilized biosolids. Also, existing Lagoon #2 would be converted to an emergency storage basin. Waste sludge from the secondary treatment process will be stored in the FSLs for several years where the solids are stabilized/digested by aerobic and anaerobic processes. Destruction of pathogens is achieved naturally by sunlight or through endogenous respiration. To minimize the potential of odor generation and upset conditions within the FSL, the upper 5 to 6 feet will be aerated to create an "aerobic water cap" on the surface of the FSL. The aeration will be provided by process blowers and floating air laterals with submerged diffusers. As the solids settle to the bottom of the FSL, the cleaner water on the top can be decanted back to the head of the WRRF for further treatment. It is assumed that solids accumulation can occur for 5 years in the FSL before removal and disposal is required. Sludge that has settled will be dredged from the FSL and pumped to dewatering bags (geotubes) installed within a containment area. Polymer is added to the sludge prior to the geotubes to promote dewatering. Drained water is pumped back to the head of the WRRF for treatment. The dewatered solids would be disposed of by land application, or sent to a landfill, either of which are acceptable means of disposal and regulated by the Environmental Protection Agency (EPA).

Alternative S-4: Thickened Aerobic Digestion with Storage & Land Application

This alternative includes construction of new aerobic digestion facilities complete with sludge storage and thickening. Waste sludge from the secondary process will be temporarily stored in a new concrete tank, then pumped to gravity belt thickeners to reduce the volume of sludge sent to the aerobic digesters. Aerobic digestion utilizes concrete tanks, process blowers, and an aeration system to reduce volatile solids and destroy pathogens. The digesters would be covered to maintain process temperatures and reduce nuisance odors. Under this option, stabilized sludge would be pumped from the aerobic digesters into glass-lined steel tanks where the biosolids would be stored until they can be land applied in warmer weather. Injection of biosolids on a farm field is an acceptable means of disposal and regulated by the Environmental Protection Agency (EPA).

Alternative S-5: Dewatering with Chemical (Lime) Stabilization & Land Application

This alternative consists of dewatering and chemical (lime) stabilization via the Schwing Bioset process, which can meet the time and temperature requirements to achieve Class A biosolids. Waste sludge from the secondary process will be temporarily stored in a new concrete tank, then pumped to a couple screw press dewatering units to reduce the water content to roughly 18 percent solids. The process raises the temperature and pH to reduce pathogens, while the lime

stabilization is used to meet vector attraction reduction requirements. The Class A biosolids will be discharged at 35 percent solids and will be stored on site prior to land application. The new facilities will allow for 180 days of cake storage.

F. CAPITAL COST COMPARISON AND PRESENT WORTH ANALYSIS

The present worth analysis is a means of comparing alternatives in present day dollars and can be used to determine the most cost-effective alternative when operation and maintenance (O&M) costs are taken into consideration. An alternative with a low, initial capital cost may not be the most cost-efficient project if high O&M costs occur over the life of the alternative. O&M costs were not considered in the cost analysis of the collection system alternatives because impacts to the City's O&M budget are not expected with either alternative. An interest rate of 0.2% over the 20-year planning period was used in the analysis. Tables 1 thru 5 provide a summary of the present worth analysis of the feasible alternatives considered.

TABLE 1
ECONOMIC EVALUATION OF COLLECTION SYSTEM ALTERNATIVES

Alt. #	Alternative	Capital Cost	Annual O&M	O&M Present Worth	Total Present Worth
C-3	Outfall Sewer Capacity Increase – Remove & Replace	$779,200	N/A	N/A	N/A
C-4	Outfall Sewer Capacity Increase – Parallel Pipes	$503,100	N/A	N/A	N/A

TABLE 2
ECONOMIC EVALUATION OF PRELIMINARY TREATMENT ALTERNATIVES

Alt. #	Alternative	Capital Cost	Annual O&M	O&M Present Worth	Total Present Worth
H-2 (S1)	Multi-Rake Bar Screen w/ Washer Compactor	$339,000	$100,600	$1,970,000	$2,309,000
H-2 (S2)	Perforated-Plate Filter Screen w/ Washer Compactor	$446,000	$129,500	$2,536,000	$2,982,000
H-2 (S3)	Continuous Moving Element Screen w/ Washer Compactor	$413,000	$115,400	$2,260,000	$2,673,000
H-2 (S4)	Inclined Cylindrical Drum Screen	$291,000	$73,900	$1,447,000	$1,738,000
H-2 (G1)	Vortex-Style Grit Separator w/ Classifier	$218,300	$53,600	$1,050,000	$1,268,300
H-2 (G2)	Stacked-Tray Grit Concentration w/ Washer/Classifier	$408,400	$110,600	$2,166,000	$2,574,400

TABLE 3
ECONOMIC EVALUATION OF SECONDARY TREATMENT ALTERNATIVES

Alt. #	Alternative	Capital Cost	Annual O&M	O&M Present Worth	Total Present Worth
T-2	Sequencing Batch Reactor	$15,712,000	$895,100	$17,532,000	$33,244,000
T-3	Oxidation Ditch	$13,427,000	$825,600	$16,170,000	$29,597,000
T-4	Modified Ludzack-Ettinger Process	$15,133,000	$818,500	$16,031,000	$31,164,000

TABLE 4
ECONOMIC EVALUATION OF DISPOSAL SYSTEM ALTERNATIVES

Alt. #	Alternative	Capital Cost	Annual O&M	O&M Present Worth	Total Present Worth
D-3	Additional I/P Bed	$937,000	$21,400	$419,000	$1,356,000
D-4	Additional Spray Irrigation	$2,001,000	$20,800	$407,000	$2,408,000
D-5	Expanded I/P Beds A & B	$559,000	$20,800	$407,000	$966,000

TABLE 5
ECONOMIC EVALUATION OF SOLIDS HANDLING ALTERNATIVES

Alt. #	Alternative	Capital Cost	Annual O&M	O&M Present Worth	Total Present Worth
S-3	Facultative Sludge Lagoon w/ Air Cap & Land Application	$3,294,000	$524,000	$10,263,000	$13,557,000
S-4	Thickened Aerobic Digestion w/ Storage & Land Application	$16,899,000	$1,354,000	$26,520,000	$43,419,000
S-5	Dewatering and Chemical (Lime) Stabilization & Land Application	$13,877,000	$1,068,000	$20,918,000	$34,795,000

G. BASIS OF SELECTION OF PREFERRED ALTERNATIVE

Selection of the preferred alternatives for the collection, disposal, and solids handling systems was based upon several criteria, both monetary and non-monetary. These criteria include life cycle cost, technical and logistical feasibility, operations and maintenance complexity, public health and safety, environmental impacts, and public acceptance. The life cycle cost analysis consisted of a comparison of the total present worth of each alternative, where a low present worth value is desired. The non-monetary factors for each alternative were assigned a ranking, with the value 1 being the most desirable option. The lowest total score indicates the highest ranked alternative.

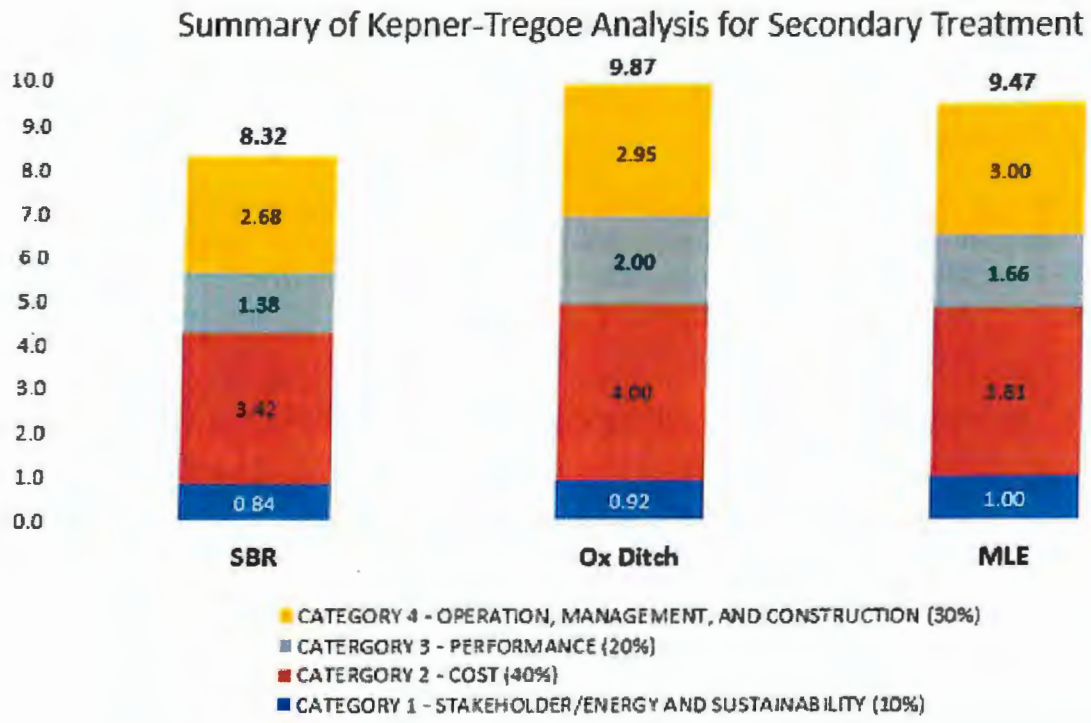
As shown in Table 6, Alternative C-4 ranked the highest of the collection system alternatives due to a lower present worth cost; simpler construction logistics, including reduced bypass pumping; and greater public acceptance, given the lower initial construction cost in comparison to the other collection system alternative.

TABLE 6
DECISION RANKING MATRIX FOR COLLECTION SYSTEM ALTERNATIVES

Criteria	Alt. C-3 Remove & Replace	Alt. C-4 Parallel Pipes
Life Cycle Cost	2	1
Technical & Logistical Feasibility	2	1
Operations & Maintenance	1	1
Public Health & Safety	1	1
Environmental Impacts	1	1
Public Acceptance	2	1
Total	9	6
Ranking	**2**	**1**

A decision-ranking matrix was not created for the preliminary treatment alternatives since the non-monetary criteria are nearly identical for all alternatives. Instead, the capital and present worth costs were compared for the different screen and grit removal alternatives to determine the best solution for the City. The costs previously shown in Table 2 indicate that Alternative H-2 (S4), inclined cylindrical drum screen, is the best alternative since it has the lowest capital and present worth costs. Likewise, Alternative H-2 (G1), vortex-style grit separator with classifier, has the lowest capital and present worth costs shown in Table 2 and was the selected alternative.

The secondary treatment alternatives were evaluated using a Kepner-Tregoe analysis, which provides a means of objectively accounting for subjective factors in the decision-making process by assigning scores to a matrix of factors weighted by relative importance to the overall decision. Based on the results of the Kepner-Trego analysis shown below, Alternative T-3 (oxidation ditch) ranked the highest due to lower capital and present worth costs, simpler operation and maintenance requirements, and excellent nutrient removal performance given variable design flows and loads during the planning period.



As shown in Table 7, Alternative D-5 ranked the highest of the disposal alternatives due to a lower present worth cost; simpler construction logistics; lower O&M requirements; and greater public acceptance given the lower initial construction cost in comparison to the other disposal system alternatives.

TABLE 7
DECISION RANKING MATRIX FOR DISPOSAL SYSTEM ALTERNATIVES

Criteria	Alt. D-3 Add I/P Bed D	Alt. D-4 Add Irrigation	Alt. D-5 Expand Beds A&B
Life Cycle Cost	2	3	1
Technical & Logistical Feasibility	2	3	1
Operations & Maintenance	2	3	1
Public Health & Safety	1	1	1
Environmental Impacts	2	1	2
Public Acceptance	2	3	1
Total	11	14	7
Ranking	**2**	**3**	**1**

As shown in Table 8, Alternative S-3 ranked the highest of the solids handling alternatives due to a significantly lower present worth cost; considerably lower O&M requirements; and greater public acceptance given the lower initial construction cost in comparison to the other solids handling alternative.

TABLE 8 DECISION RANKING MATRIX FOR SOLIDS HANDLING ALTERNATIVES			
Criteria	**Alt. S-3 Facultative Sludge Lagoon**	**Alt. S-4 Aerobic Digestion w/ Storage**	**Alt. S-5 Dewatering & Lime Stabilization**
Life Cycle Cost	1	3	2
Technical & Logistical Feasibility	1	1	1
Operations & Maintenance	1	3	2
Public Health & Safety	2	1	1
Environmental Impacts	2	1	1
Public Acceptance	1	2	3
Total	8	11	10
Ranking	**1**	**3**	**2**

The estimated administration, engineering, finance, and construction cost for the recommended alternatives (Alternatives C-4, H-2 (S4), H-2 (G1), T-3, D-5, S-3) is $37,850,000. The City intends to fund the upgrade project through a $1,680,000 USDA/Rural Development (RD) grant; $19,900,000 RD loan (40 years @ 2.75%); $15,850,000 State Revolving Fund (SRF) loan (20 years @ 2.5%); and $420,000 of City funds.

The City has taken a proactive step to maintain a long-term rate outlook to ensure a sustainable financial approach. The City recently implemented a sewer rate that will gradually increase over the next 10 years to fund the proposed improvements. After the rate increases are imposed, the monthly residential sewer base rate will increase from $27.42 to $40.41. During this same time, commercial sewer base rates will go from $29.92 to $56.57 per month.

Table 9 provides data on the monthly residential sewer rate and median household income for Belgrade. Based on the EPA guidance for project affordability, the proposed project will result in a monthly cost per household that is a little over 1% of the monthly median household income, and therefore, is not expected to impose a substantial economic hardship on most households.

Table 9 **PROJECT AFFORDABILITY**	
Monthly residential sewer rate[1]	$40.41
Monthly median household income (mMHI)[2]	$3,948
Sewer rate as a percentage of mMHI	1.02 %

[1] 2019 Wastewater PER

[2] Based on 2015 American Communities Survey data

IV. AFFECTED ENVIRONMENT

A. PLANNING AREA/MAPS

The City of Belgrade is an incorporated city in Gallatin County, just east of the Continental Divide, in southern Montana. The City is situated on Interstate-90, roughly 10 miles west of Bozeman. A vicinity map is presented in Figure 1. The City is roughly 3.25 square miles. The planning area is approximately 12.5 square miles and includes the incorporated boundary of the City of Belgrade, the Bozeman-Yellowstone International Airport, and areas that may be developed soon. The city boundary and planning area are shown in Figure 2. This figure also shows the location of the City's existing WWTP. Figure 3 shows the preliminary layout of the collection system, new secondary treatment, disposal system, and solids handling upgrades. Figure 4 shows two potential sites for land application of biosolids removed from the existing lagoon cells, and the associated haul routes.

B. POPULATION AND FLOW PROJECTIONS

Population trends for both the City and Gallatin County were reviewed to gain a better understanding of past growth in the area. The City and County have experienced average annual growth rates in the 3 to 4% range in recent years. Based on existing service commitments and planned growth anticipated to connect to the system, it is likely that the City will experience continued growth over the planning period. The 2019 PER states that an annual growth rate of 3.5% will provide a conservative basis of design. With this growth rate and a 20-year planning period, the current population of 8,423 persons is estimated to increase to 19,360 people in 2038. The wastewater flows for the current and future populations reported in the 2019 PER are summarized below in Table 10.

The City is comprised of residential, commercial, and light manufacturing properties. Current wastewater flows were estimated from historic influent flows to the City's WWTP. Flow data from January 2010 to August 2018 was utilized. Although the collection system is roughly 50 years old, infiltration and inflow (I/I) are not considered a significant source because the static groundwater level around the City ranges from 22 to 75 feet below the ground surface. Furthermore, seasonal trends in flow measurements indicative of I/I were not observed. Wastewater is of average domestic strength except for biological oxygen demand (BOD), which is elevated when compared to typical literature values. The City is in the process of trying to identify where this increased BOD load is originating.

Table 10
PROJECTED POPULATION AND WASTEWATER FLOWS

Year	Population	Average Daily Flow (gal/day)	Max Month Flow (gal/day)
2018	8,423	760,000	950,000
2038	19,360	1,740,000	2,170,000

C. NATURAL FEATURES

The City has relatively flat topography, generally sloping to the north. The Gallatin and Madison mountain ranges are south of the City, while the Bridger Mountains and the Tobacco Root Mountains are east and west of the City, respectively. The project site sits at an elevation of roughly 4,450 ft above sea level. The nearby mountains can rise to elevations as high as 10,300 ft. Based on the Natural Resources Conservation Service mapping, most of the planning area consists of soils classified as loam and cobbly loam.

Belgrade is located between the East and West Gallatin rivers, just south of their confluence. Several tributaries, such as Cottonwood, Gibson, and Bostwick creeks, flow past the City. Additionally, numerous irrigation ditches flow through the planning area. According to the Groundwater Information Center (GWIC), well logs from 50 wells in the area reported an average static water level of 45 ft below the top of casing. The City's existing WWTP discharges to groundwater, which required the construction of several monitoring wells downgradient of the I/P beds. Static water level at the existing WWTP is roughly 30 feet below ground surface.

The average high temperature in the Belgrade area is 84°F, but can occasionally top 100°F during the summer months. The average low temperature is approximately 12°F, with periods of sub-zero temperatures at times during the winter months. The average annual precipitation is 14.0 inches per year, with nearly 35% of that falling during the spring months. The total annual snowfall for Belgrade is approximately 41 inches per year.

V. ENVIRONMENTAL IMPACTS OF PROPOSED PROJECT

A. DIRECT AND INDIRECT ENVIRONMENTAL IMPACTS

1. Land Use/Prime Farmland – Within the City, land use is predominantly residential or commercial, while land outside the city limits is primarily farmland. The collection system improvements, new WRRF, and disposal system upgrades will be located on property the City currently leases from the State of Montana and the Gallatin Airport Authority. The NRCS Web Soil Survey denotes the land at the new WRRF location as prime farmland of local or statewide importance which requires a NRCS AD-1006 form be completed for the project. The assessment concluded that the project is not subject to the provisions of the Federal Farmland Protection Policy Act. Construction will temporarily disturb some areas, but will be completed with surface restoration such as pavement, gravel surfacing or revegetation.

2. Floodplains – As noted previously, Belgrade is located near the East and West Gallatin rivers. Based on floodplain maps for the area, the new WRRF will not be located within a mapped floodplain. The Department of Natural Resources and the Gallatin County Department of Planning and Community Development were notified of this project and asked to reply with any concerns. See *Section X, Agencies Consulted* of this report for a summary of their comments.

3. Wetlands – Based on a search of the National Wetland Inventory database, there are a small number of wetlands within the planning area classified as freshwater pond and freshwater emergent. However, all proposed improvements will be designed and constructed to avoid impacts to the surrounding wetlands. The Army Corps of Engineers was contacted regarding the proposed improvements and their comments are summarized in *Section X, Agencies Consulted* of this report.

4. Cultural Resources – Due to previously disturbed conditions, no impacts to cultural resources are anticipated. All construction activity will occur on previously disturbed ground. No structures will be impacted. The State Historical Preservation Office was contacted regarding the proposed improvements and their comments are summarized in *Section X, Agencies Consulted* of this report.

5. Fish and Wildlife – The project will not affect any wildlife habitats, nor will any known endangered species be affected. The project is not located within any designated sage grouse habitat areas. The U.S. Fish and Wildlife Services and Montana Fish, Wildlife, and Parks were contacted regarding the proposed improvements and their comments are summarized in *Section X, Agencies Consulted* of this report.

6. Water Quality – The new treatment structures will be constructed with watertight, concrete basins and the repurposed lagoon cells will be leak-tested to ensure there will be no impacts to groundwater from the new WRRF. The proposed project will also protect groundwater quality by providing a higher level of nutrient removal and increased capacity to limit the number of individual on-site treatment systems in the Belgrade area.

   Treated effluent from the new WRRF will be discharged to groundwater via the City's existing MGWPCS permit MTX000116. The permit was issued in October 2018 and will expire on September 30, 2023. The City's existing WWTP discharges to Class I groundwater. Class I groundwaters have a natural specific conductance less than or equal to 1,000 microSiemens/cm at 25°C. The quality of Class I groundwater must be maintained so that these waters are suitable for their intended beneficial uses. The City's permit lists three outfall locations (001-A, 002-B, 003C), each permitted for I/P beds and a 750-foot mixing zone. Outfall 001-A is permitted for 71 lbs/day of TN, outfall 002-B is permitted for 72 lbs/day of TN, and outfall 003-C is permitted for 84 lbs/day of TN based on non-degradation and mixing zone requirements. Recent planning work shows that the City can discharge a total of 1,543,500 gpd to the I/P beds in the winter and 1,764,000 gpd in the summer, based on required wetting and drying periods. These winter and summer flow rates result in a TN loading from the I/P beds ranging from 52 lbs/day to 70 lbs/day, which is below the City's permit limits. In addition, the City has approval to discharge roughly 744,000 gpd during the spring and summer via their land application system. The City is currently working on a groundwater disposal study that

will verify hydrogeologic conditions below the site and quantify the amount of nutrient and pathogen removal that is being accomplished in the mixing zone. Depending on the results presented in the report, a revised nondegradation analysis and permit modification may be required by the Department.

The DEQ has the statutory authority to develop effluent limits and issue discharge permits consistent with the Montana Water Quality Act and rules adopted under the Act. The DEQ has set effluent limits in the City's discharge permit that are protective of water quality and beneficial uses by ensuring there will be no increase of a parameter to a level that renders the waters harmful, detrimental or injurious to users. As part of the permitting process, DEQ is required to perform a significance determination to assess whether an activity (i.e., discharge) will cause degradation of the receiving water or not. The DEQ determined that the constructed discharges will not result in the degradation of the receiving water provided the limits established in the permit are maintained.

7. Air Quality - Short-term negative impacts on air quality are expected to occur during construction from heavy equipment in the form of dust and exhaust fumes. Proper construction practices will minimize this problem with the project specifications requiring dust control. The new WRRF will produce some odors associated with the wastewater treatment process, but will be reduced as much as possible using aerated processes. Odor control measures will be implemented as necessary.

8. Public Health - Public health will not be negatively affected by the proposed project. Expansion of treatment capacity to serve the growing Belgrade area will provide opportunities to connect new development to the City's wastewater system and away from the use of on-site treatment systems. The new WRRF will produce a higher-quality effluent in comparison to that produced by the existing lagoon facility. As a result, there should be better groundwater quality downgradient of the WRRF's outfall locations.

9. Energy – An increase in energy consumption will occur after the new WRRF is constructed, due largely to the increase in mechanical equipment. Energy consumption will be minimized as much as possible using energy-efficient equipment (pumps, aeration equipment, lighting, etc.) and variable frequency drives on pumps and blowers. The consumption of energy resources directly associated with construction of the recommended improvements is unavoidable, but will be short-term.

10. Noise - Short-term impacts from excessive noise levels may occur during construction activities. The construction period will be limited to normal daytime hours to avoid early morning or late evening construction disturbances. Due to the proximity of residences, all unit processes and equipment will be housed in buildings or provided with enclosures to minimize noise associated with the operation of the facility.

11. Sludge Disposal – It is intended that all sludge (biosolids) will be pumped from the existing cells, dewatered to roughly 15% solids content, and either land-applied in accordance with Federal 40 CFR 503 sludge disposal regulations or hauled to a landfill for disposal. The Part 503 regulations contain specific numerical limits and other requirements for heavy metals, pathogens, and vector attraction. A potential contractor must perform verification of sludge quantity and quality, in-place sludge nutrient content, identification of a disposal site, and nutrient testing of soils at the application site. The final plan utilizing this information must be submitted to DEQ for review and approval prior to sludge disposal.

    The sludge would be removed and dewatered using a method determined by the contractor; transported to appropriate, nearby farmland and land-applied by surface incorporation; or hauled to a Class II landfill. The City's engineer has identified two potential sludge disposal sites within 2 miles of the existing WWTF. It is estimated that the contractor will need to dewater and haul roughly 800 tons of biosolids from the existing lagoon cells. The two potential land application sites are shown on Figure 4. If the contractor chooses not to land apply the biosolids, the sludge will be hauled to the Logan Landfill (approximately 26 miles away), presuming it meets the paint-filter liquids test and other requirements of the Part 258 Landfill Rule.

    As mentioned previously, the new WRRF will utilize a facultative sludge lagoon (equipped with diffused aerators for odor control) for long-term sludge storage and stabilization. The City will hire a specialty contractor roughly every five years to remove the sludge from the lagoon and either land apply the dewatered sludge in accordance with EPA's 503 Regulations, or dispose of the sludge in an approved Class II landfill in accordance with EPA's 258 Regulations *Criteria for Municipal Solid Waste Landfills*. The final "long-term" sludge disposal plan must be submitted to the DEQ for review and approval at least 90 days prior to disposal.

12. Environmental Justice – The proposed WRRF project will not result in disproportionately high or adverse human health or environmental effects on minority or low-income populations. No disproportionate effects among any portion of the community would be expected. The project will be funded with grants and low-interest loans to minimize the impact on lower income sewer customers.

13. Wild and Scenic River Act – The proposed project will not impact any rivers designated as wild and scenic by Congress or the Secretary of the Interior.

14. Growth – The Belgrade area experienced steady growth in the last decade as major subdivisions in the area were developed. The dynamic nature of development in the Belgrade area requires that the City continually plan for growth. The 20-year design population is based on a growth rate of 3.5% per year. The proposed wastewater improvements can serve an equivalent population of 19,360 people. The anticipated increase in population and development in the service area will result in increased flows to the new

WRRF, which will be a positive feature for the area. Providing additional treatment capacity will allow the City to manage its growth in a proactive manner and promote higher density development within the service area.

15. Cumulative Effects - The increased capacity at the wastewater treatment plant may result in secondary and/or cumulative impacts due to growth within the planning boundary. Secondary impacts associated with housing, commercial development, solid waste, transportation, utilities, air quality, water utilization, and possible loss of agricultural and rural lands may occur. These secondary impacts are uncertain at this time, and therefore, cannot be directly addressed in this EA. However, these impacts will need to be managed and minimized as much as possible through proper community planning. There are several existing city, county and state regulations already in place (i.e., zoning regulations, comprehensive planning, subdivision laws, etc.) that control the density and development of property with regards to water supply, sewage disposal, solid waste disposal, transportation, and storm drainage system.

B. UNAVOIDABLE ADVERSE IMPACTS

Short-term construction-related impacts (i.e., noise, dust, etc.) will occur, but should be minimized through proper construction management. Energy consumption during construction and energy for operation of the new WRRF cannot be avoided.

VI. PUBLIC PARTICIPATION

The City of Belgrade has been proactive about upgrading its water and wastewater systems including preparation of two Master Plan documents in 2018. Additionally, a rate study was performed in conjunction with the Master Plans to provide the City with a plan to finance the necessary improvements. The City is also preparing a groundwater study to evaluate the dilution and dispersion available in their existing mixing zones and to characterize the natural denitrification occurring in the soils.

The evaluation and recommendations in the 2019 PER were presented during the City Commission meeting on February 19, 2019. A public hearing was held on April 15, 2019 to discuss the need for the project, proposed solutions, and funding strategy. No public comments were received during the meeting. The City Council accepted and approved (through Resolution No. 2019-17) the findings and recommendations of the 2019 PER on July 15, 2019.

VII. AGENCY ACTION, APPLICABLE REGULATIONS AND PERMITTING AUTHORITIES

All proposed improvements will be designed in accordance with Design Standards for Public Sewage Systems (Circular DEQ-2), and will be constructed using standard construction methods. Best management practices will be implemented to minimize or eliminate pollutants during construction. An asbestos inspection will be completed prior to starting construction to identify possible asbestos-containing materials. No additional permits will be required from the State Revolving Fund (SRF) section of the DEQ for this

project after the review and approval of the submitted plans and specifications. However, coverage under the storm water general discharge permit and groundwater dewatering discharge permit, are required from the DEQ Water Protection Bureau prior to the beginning of construction. A Section 404 permit from the U.S. Army Corp of Engineers, a 124 Permit from the Department of Fish, Wildlife and Parks, and a 318 Authorization from the DEQ will be required for any work that occurs in a streambed or wetland, and will be obtained if necessary.

VIII. RECOMMENDATION FOR FURTHER ENVIRONMENTAL ANALYSIS

[ ] EIS [ ] More Detailed EA [X] No Further Analysis

Rationale for Recommendation: Through this EA, the DEQ has verified that none of the adverse impacts of the proposed City of Belgrade WRRF Upgrade project are significant. Therefore, an environmental impact statement is not required. The environmental review was conducted in accordance with the Administrative Rules of Montana (ARM) 17.4.607, 17.4.608, 17.4.609, and 17.4.610. The EA is the appropriate level of analysis because none of the adverse effects of the impacts are significant.

IX. REFERENCE DOCUMENTS

The following documents have been utilized in the environmental review of this project and are considered to be part of the project file:

1. Belgrade Wastewater Preliminary Engineering Report, March 2019; prepared by TD& Engineering and AE2S, Inc.

2. Uniform Application Form for Montana Public Facility Projects, April 2019, prepared by the City of Belgrade.

3. City of Belgrade Authorization to Discharge Under the Montana Groundwater Pollution Control System, Permit No. MTX000116, issued October 1, 2018; prepared by Montana Department of Environmental Quality.

4. Miscellaneous Correspondence – Belgrade WRRF Upgrade, October 2019 – January 2020; TD&H Engineering.

X. AGENCIES CONSULTED

The following agencies have been contacted regarding the proposed construction project:

1. The Montana Department of Natural Resources and Conservation (DNRC) was contacted on October 25, 2018 regarding impacts to floodplains from the proposed project. No comments were received from the DNRC. However, a letter was sent on July 15, 2019 to the Gallatin County Floodplain Administrator requesting review of the proposed project and possible impacts to nearby floodplains. A response was received on December 6, 2019 stating that this project is located outside of the FEMA-mapped 100-year floodplain.

2. The Montana Department of Fish, Wildlife and Parks (FWP) was contacted on October 25, 2018 regarding any impacts to fish and wildlife due to the proposed project. Montana FWP stated in a December 13, 2018 response letter that they had no comments regarding the proposed project. Based on field investigations, FWP was contacted via phone call on November 13, 2018 regarding the presence of bald eagle nests near the proposed construction. FWP did not believe there would be any impacts based on the information provided; however, this issue needs to be reassessed once the final design and construction plans are known.

3. The Montana State Historic Preservation Office (SHPO) was contacted on October 25, 2018 and reviewed the project for historical significance. According to their records, there have been a few previously recorded sites and a few cultural resource inventories done within the designated search locales. In an October 29, 2018 email, SHPO stated that as long as there will be no disturbance or alteration to structures over fifty years of age they feel that there is a low likelihood that cultural properties would be impacted and, as such, felt a cultural resource inventory is unwarranted at this time. However, should structures need to be altered or cultural materials be inadvertently discovered during the project, SHPO must be contacted and the site investigated.

4. The U.S. Department of the Army Corps of Engineers (USCOE) was contacted on October 25, 2018, regarding impacts to wetlands due to the proposed project. The USCOE stated in a November 21, 2018 response letter that placement of fill material in any area below the ordinary high-water mark of any stream channel, lake or pond, or wetland would require a permit. The proposed project does not intend to place fill material below the ordinary high-water mark of any nearby waterbody or wetland so a permit from the USCOE is not required.

5. The U.S. Fish and Wildlife Service (FWS) was contacted on October 25, 2018. FWS maintains a list of threatened, candidate, and endangered species that may reside within each Montana county. The species of interest and their status in Gallatin County include the Ute Ladies' Tresses (listed threatened); Canada Lynx (listed threatened, designated critical habitat); Grizzly Bear (listed threatened); Wolverine (proposed); and Whitebark Pine (candidate). The FWS stated in a November 2, 2018 response letter that based on the confined nature and location of the proposed project that they do not anticipate its implementation would result in adverse effects to listed, proposed or candidate threatened endangered species, or listed or proposed critical habitat.

6. The Department of Environmental Quality's Source Water Protection staff and Waste Management and Remediation Division staff have assessed the proposed project site for potential contaminant sources (PCSs). There was one PCS identified within the project area. The Site Response Site is located at the Bozeman-Yellowstone International Airport near the Delta Airways Terminal. According to the DEQ Contaminated Site Cleanup Bureau, the propylene glycol spill was remediated and the site closed October 6, 1997. It is not likely to pose a concern to the proposed project.

7. Given the proximity to the Bozeman-Yellowstone International Airport (Airport), both the Federal Aviation Administration (FAA) and Airport were contacted regarding the proposed WRRF upgrades. A draft Construction Safety and Phasing Plan (CSPP) was completed and submitted to the Airport for review. The final and approved CSPP will be included in the Special Provisions section of the project contract documents. The FAA stated that a Notice of Proposed Construction or Alteration (Form 7460) will be required for each piece of construction equipment and for all proposed permanent buildings. Form 7460 has been submitted for all expected construction and will be updated once the final building dimensions and elevations are confirmed. The FAA also determined that the planned upgrades would not attract wildlife, and would likely improve the situation with the proposed reduction in surface water by taking one of the lagoon cells out of service.

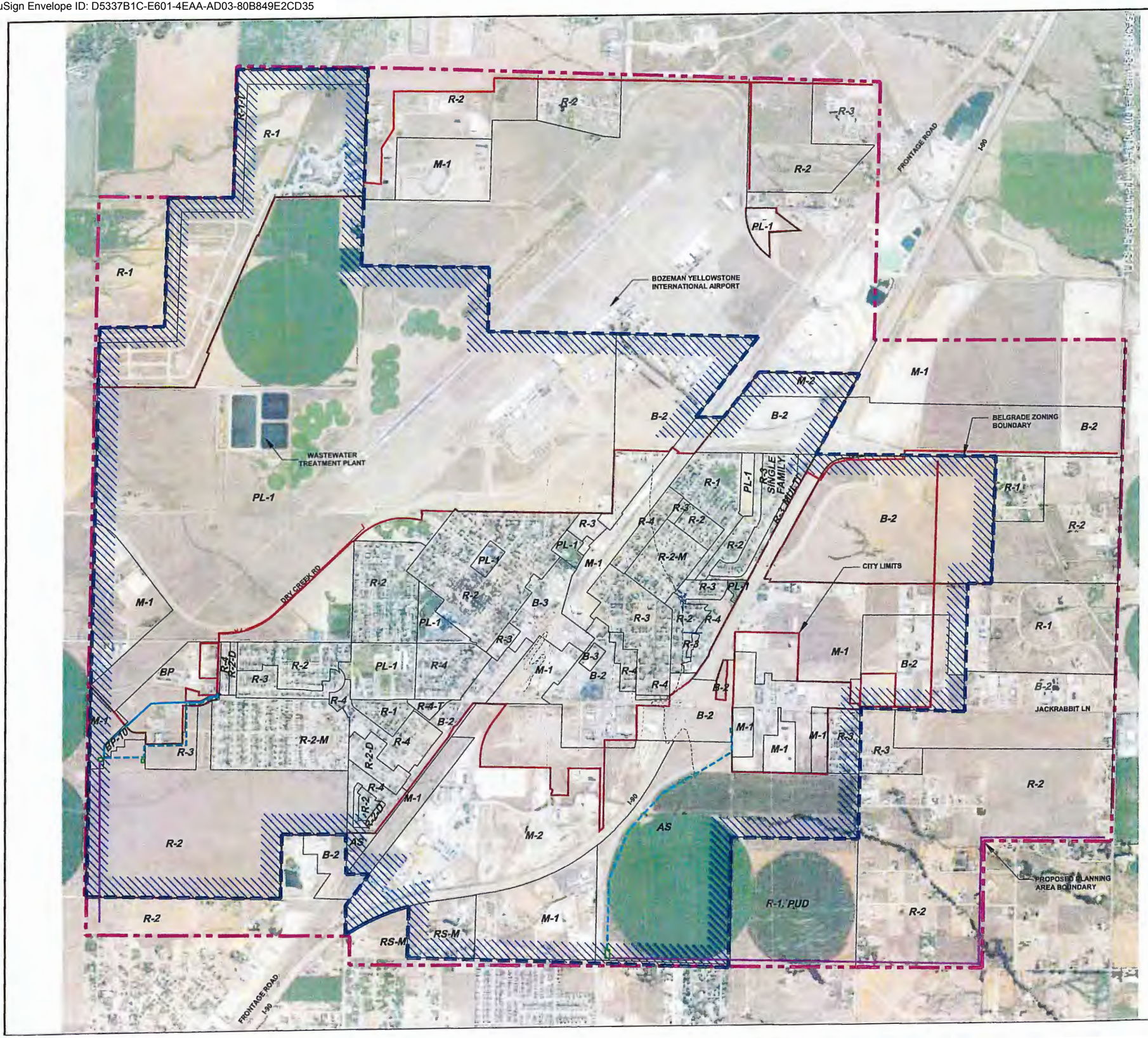
EA Prepared by:

Jeremy Perlinski, P.E. — Date: 2/21/2020

EA Reviewed by:

Michele Marsh, P.E. — Date: 2/21/2020

FIGURE 1



LEGEND

- CITY LIMITS
- PROPOSED PLANNING AREA BOUNDARY
- BELGRADE ZONING LIMITS
- BELGRADE ZONING BOUNDARY

0 1000' 2000' 3000'
SCALE

ZONING INDEX

ZONE	DESCRIPTION
AS	Agricultural Suburban District
BP	Business Park
BP-10	Business Park
B-2	Highway Business District
B-3	Central Business District
M-1	Commercial-Light Manufacturing District
M-2	Manufacturing and Industrial District
PL-1	Public Lands and Institutions
R-1	Residential Single Family
R-1-T	Residential Transitional District
R-2	Residential Single Family District Medium Density
R-2-D	Residential One and Two Family
R-2-M	Residential Single Family and Manufactured Homes
R-3	Residential Medium Density District
R-3-Multi	Residential Multi-Family District
R-4	Residential Apartment District
R-4-1	Residential Transitional District
RS-M	Residential Suburban Manufactured

NOT FOR CONSTRUCTION

REVISION | DATE | REV

TD&H Engineering
406.761.3010 • td&hengineering.com
1800 RIVER DR. NO. • GREAT FALLS, MONTANA 59401

DRAWN BY: CJS
DESIGNED BY: DDN/CEVJ
QUALITY CHECK: NMR
DATE: 05-23-2017
JOB NO. B16-048
FIELDBOOK

BELGRADE WASTEWATER PER
BELGRADE, MONTANA

PLANNING BOUNDARY AND ZONING

Figure 2

NOT FOR CONSTRUCTION

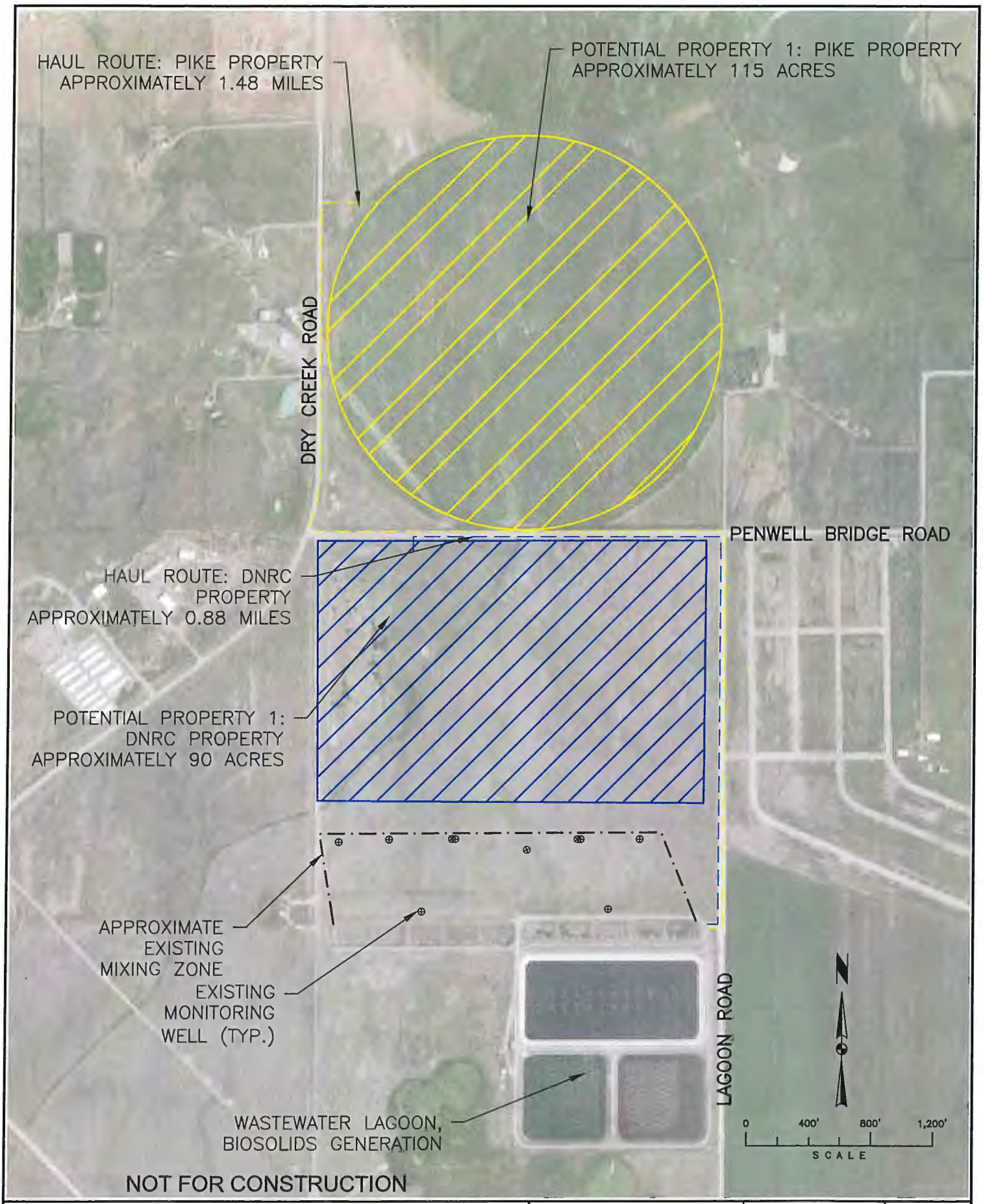
BELGRADE WATER RECLAMATION FACILITY
BELGRADE, MONTANA

PROPOSED PROJECT

TD&H Engineering
406.586.0277 • tdhengineering.com
234 E. BABCOCK ST., SUITE 3 • BOZEMAN, MONTANA 59715

DRAWN BY:	NMR
DESIGNED BY:	
QUALITY CHECK:	
DATE:	
JOB NO.	B18-082
CAD FIGURE-COMPLETE PROJECT	

FIGURE
3



NOT FOR CONSTRUCTION

BELGRADE WATER RECLAMATION FACILITY
BELGRADE, MONTANA

LAND APPLICATION

POTENTIAL APPLICATION SITES AND HAUL ROUTES

TD&H Engineering
406.586.0277 • tdhengineering.com
224 E. BABCOCK ST., SUITE 1 • BOZEMAN, MONTANA 59715

DRAWN BY:	NMR
DESIGNED BY:	
QUALITY CHECK:	
DATE:	
JOB NO.	B18-082
CAD NO.	HAUL ROUTES

FIGURE

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